

## ULTRASONIC TREATMENT APPARATUS

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- **international:** A61B17/22; A61B18/00; A61B17/22; A61B18/00; (IPC1-7): A61B17/22; A61B17/36

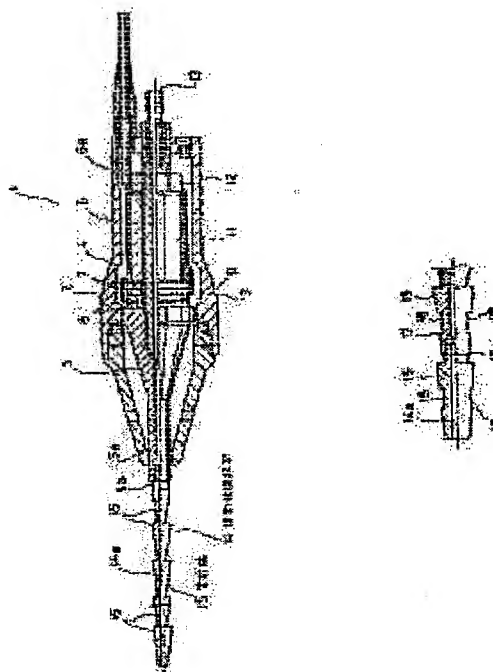
- **European:**

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### Abstract of JP 63302842 (A)

**PURPOSE:**To prevent the reduction of the amplitude of the ultrasonic vibration at the leading end of a vibration transmitting member by the vibration amplifying action possessed by a tubular body, by constituting the vibration transmitting member by connecting a plurality of tubular bodies having a horn shape. **CONSTITUTION:**One end of a mount shaft 6 is screwed in the rear end surface of a conical horn 5, and an oscillation member 9 wherein piezoelectric elements 7 and electrodes 8 are alternately laminated and a sleeve 11 are successively externally fitted to the shaft 6 in a freely slidable manner to be held and fixed by a nut 12 to constitute a Langevin type vibrator 4. Tubular bodies 15 are constituted so that the length of each of them is set to  $1/2$  the wavelength of the ultrasonic vibration of the vibrator 4 and a male screw part 16 is provided to the base end surface thereof in a protruding state and threaded with a female screw part 17 in a freely detachable manner to form a vibration transmitting member 14. Even when the amplitude of the vibration of the vibration transmitting member 14 is lowered at the time of actual driving, the amplitude at the leading end thereof can be prevented from becoming lower than that of the ultrasonic vibration generated in the vibrator 4.



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